



PATENT
3782-0113P

IN THE U. S. PATENT AND TRADEMARK OFFICE

APPLICANTS: Christer FÄHRAEUS et al. CONF. NO. 8101
APPLN. NO.: 09/813,115 GROUP: 2161
FILED: March 21, 2001 EXAMINER: Unknown
FOR: SECURED ACCESS USING A COORDINATE SYSTEM

RECEIVED
OCT 03 2001
Technology Center 2100

LETTER SUBMITTING TRANSLATION
OF NON-ENGLISH LANGUAGE PROVISIONAL APPLICATION
PURSUANT TO 35 U.S.C. § 119(e) AND 37 C.F.R. 1.78(a)(5)

Assistant Commissioner for Patents
Washington, D.C. 20231

September 28, 2001

Sir:

In accordance with the requirements of 35 U.S.C. § 119(e) and 37 C.F.R. § 1.78(a)(5), attached hereto is a verified English language translation of U.S. Provisional Application No. 60/207,850 filed on May-30, 2000. This submission completes the claim for priority of this provisional application in the above-identified patent application.

If necessary, the Commissioner of hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under § 1.17; particularly, extension of time fees.

Respectfully submitted,
BIRCH, STEWART, KOLASCH & BIRCH, LLP

By: 

Michael K. Mutter
Reg. No. 29,680

MKM/gf
(703) 205-8000

P.O. Box 747
Falls Church, VA 22040-0747

#5



RECEIVED
OCT 03 2001
Technology Center 2100

VERIFIED TRANSLATION

I, the undersigned E.V. RENOVA, technical translator, of RWS
TRANSLATIONS, do hereby declare:

- (1) That I am well familiar with the Swedish and English languages;
- (2) That the attached is a true and accurate translation into the English language of the Swedish text of this Patent Application entitled "LOGG LOGG IV" that was filed in the US Patent and Trademark Office on 30 May 2000...
- (3) That all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under § 1001 of title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: this ^{3rd} day of AUGUST, 2000

E.V. Renova



3782-113P

RECEIVED
OCT 03 2001
Technology Center 2100

UNITED STATES PATENT APPLICATION

OF

CHRISTER FÅHRAEUS, PETTER ERICSON
AND
SVEN OLOF KARLSSON

FOR

LOGGING IN

Field of the Invention

The present invention relates to a system for controlling a user's access to an access-protected unit, a checking device for checking the access of a user to an access-protected unit, a method for controlling access, a computer program for performing the method and use of a position-coding pattern.

Background of the Invention

To protect different types of systems and devices such as, for example, computers or other electronic equipment, against unauthorized persons, it is known to equip them with some type of access protection. A usual access protection for a computer consists in that a user must log in to the computer to be able to use it. On logging-in, the user enters his user identity and a password into the computer which checks this information against information stored earlier in order to determine if the user is authorized to use the computer. The disadvantage of this process is that a user must memorize his password which can be difficult since we surround ourselves with many systems which demand a logging-in process and since these often have different passwords. Many write down their password, with the consequence that, if someone finds the record, this person can get into the system associated with the password in a simple manner. If the user then also has the same password for several

different systems, this can have far-reaching consequences.

In the Japanese document JP10222241 "Electronic Pen and System and Method for Individual Authentication", an electronic pen is described which is equipped with a gyrosensor which, when the user is writing his signature with the pen, senses features of the signature and produces a password by means of an algorithm.

It is also known from WO 99/48268 to replace the PIN code in a mobile communication unit with a signature which the user writes with the communication unit. The communication unit is equipped with a sensor of the gyrosensor or pressure-ball type which senses the movement when the user is writing with the unit.

One problem of the above-mentioned techniques is that a signature is not especially difficult to forge.

Summary of the Invention

It is therefore an object of the invention to provide a system which enables simple and reliable checking of the access to an access-protected unit.

This object is achieved with a system according to claim 1, a checking device according to claim 13, a method according to claim 23, a computer program according to claim 30 and use according to claim 31.

More specifically, the invention provides, according to a first aspect, a system for checking the access of a user to an access-protected unit, the system comprising

a user unit which is arranged to register at least two coordinates, and checking means which are arranged to check, on the basis of said two coordinates, if the user is authorized to access the access-protected unit and, if yes, to provide an enabling signal to the access-protected unit.

The invention is based on the concept of using a new parameter, namely coordinates, as a basis for checking the access to an access-protected unit. An advantage of a system which is based on coordinates is that, as will be seen below, it can be constructed with varying degrees of security, from a very simple system where it is enough to register a correct pair of coordinates, to a very secure system where both, for example, a correct pair of coordinates and a correct signature and/or the identity of the user must be registered.

Coordinates are especially suitable for being used as a basis for access control when the access-protected unit lacks a keyboard, since coordinates can be registered, for example, by being read with a sensor.

For example, the coordinates can be advantageously registered by the user unit optically reading a position-coding pattern which codes coordinates for a plurality of points. Access to an access-protected unit can then be obtained by the user registering coordinates for points within a particular coordinate area.

Coordinates are also specially suitable for being used as parameters for access-control in systems for electronic registration of handwriting since handwritten text which is written on a writing surface with position-coding patterns can be registered electronically as a sequence of coordinates by continuous reading of the position-coding pattern. Position-coding patterns which can be used for registering handwritten text are described in, for example, US 5,852,434 and Applicant's Swedish Patent Applications SE 9901954-9 and SE 99003541-2, which were filed on 28 May 1999 and 1 October 1999 respectively, and which were thus not publicly available when the present application was filed. At least the position-coding patterns described in Applicant's patent applications can code coordinates for a very large number of positions on an imaginary surface. Different coordinate areas can then be allocated to different users and the position-coding pattern which corresponds to the coordinate area can be imaged on a personal card or the like which is allocated to the user. He can only access a certain access-protected unit by reading coordinates from this card.

The access-protected unit is a unit which is to be protected from unauthorized persons. Examples of access-protected units are computers, buildings, vehicles, web pages and different types of electronic equipment.

In one embodiment of the system according to the invention, the checking means are thus arranged to check if the coordinates are lying within a predetermine coordinate area for checking the authorization of the user.

As a very simple example, a hand-held scanner or digital pen can be envisaged for electronic registration of handwriting, where the owner can only log in by registering coordinates from a card which he has obtained with the purchase of the scanner/pen. In this case, the checking means are located in the scanner/pen and only needs to have information on the extent of the predetermined coordinate area and to check that the registered coordinates are lying within this field.

Logging-in on different scanners/pens can require coordinates from different coordinate areas.

The coordinate area is defined in advance and can, for example, be defined as lying within determined coordinates which represent the corners of the field.

In an advantageous embodiment of the system, the user unit is arranged to register a user signature as a sequence of coordinates which describe the displacement of the user unit when a user is writing the user signature with the user unit and said at least two coordinates comprise the sequence of coordinates.

An advantage of the user writing his signature is that the security increases. The signature is normally the signed name of the user but can also be a symbol or

any type of sign. For an unauthorized person to be able to log in to the access-protected unit, both access to the coordinate area and signature of the authorized user are required in this case. This higher security can be implemented without the hardware of the system needing to be changed, since registration of the signature and registration of the coordinates can be done with the same technology.

The checking means are suitably arranged to compare the sequence of coordinates which thus represent the registered signature, with a sequence of coordinates stored earlier for checking the authorization of the user. The enabling signal for the access-protected unit is only given if the sequences correspond to the desired extent.

The user unit, the checking means and the access-protected unit can be physically placed in different ways with respect to one another.

The checking means can be physically integrated with the user unit, with the access-protected unit or be self-contained. The checking means can also be physically divided, which implies that a certain part of the authorization check is done in one place and another part of the authorization check is done in another place. For example, a first check can be done in the user unit and a second check in the access-protected unit.

When the checking means are self-contained, they can be used jointly for a plurality of user units and a plurality of access-protected units. They then become more complicated and need to have a greater memory and processing capacity, among other things.

When the checking means are integrated with the user unit, they only need to check users of the access-protected unit or units which can be accessed via the user unit.

In one embodiment of the system, the access-protected unit is integrated with the user unit.

The access then applies to the user unit itself, the user unit and the access-protected unit can be seen as one and the same unit. In this case, the user starts the unit and must then carry out a logging-in, during which he can only use the functions of the unit which are required for logging-in, i.e. registration of coordinates and possibly other logging-in parameters. The functions which are accessible during logging-in can be said to correspond to the user unit whilst the remaining functions which become accessible only after correct logging-in can be said to correspond to the access-protected unit.

The checking means can be, but do not have to be, integrated with the user unit and the access-protected unit.

As an alternative, the access-protected unit can be isolated from the user unit. It can be integrated with the checking means.

In an advantageous embodiment of the system, the access-protected unit is a digital pen which can be used for digitizing handwritten text.

As already mentioned, the checking means can be common to a number of user units which send the registered coordinates to the checking means. In this embodiment of the system, the information stored in the checking means relates to a plurality of coordinate areas. The checking means can be, for example, web-based and reached via a computer network.

Each coordinate area can be associated with one or more users and/or one or more access-protected units. In the former case, a number of users can thus reach a unit by registering coordinates from one and the same predetermined field. This can be desirable, for example, if the access-protected unit is a computer which a number of persons are to be able to use, or premises which a number of persons are to be able to gain entry to. In the latter case, for example, a person can access different access-protected units by registering coordinates from one and the same predetermined coordinate area. For example, a person can wish to log in to different apparatuses via a standard logging-in process.

In an embodiment of the system, the access-protected unit is associated with at least one of said plurality of coordinate areas.

The coordinates which are registered by the user unit control for which access-protected unit the access is intended. This results in a simple and flexible way of obtaining access to a certain access-protected unit. Different coordinate areas can be associated with different access-protected units. A coordinate area can also be associated with more than one access-protected unit, but then the user has to indicate in some way which access-protected unit he wishes to access.

In one embodiment of the system, there is at least one authorized user identity which is associated with at least one of said plurality of coordinate areas.

The coordinates which are registered by the user unit here control the user identity. Within the coordinate area which is associated with at least one authorized user, there can also be subareas which are associated with different access-protected units. The advantage of this is that if someone can forge a signature, he must also have access to the base with the predetermined coordinates which are associated with the signature.

In one embodiment, the system comprises a base which is provided with a position-coding pattern which enables coordinates to be determined and from which the user unit is arranged to register said at least two coordinates.

Different coordinates are registered depending on where on the base the user places the user unit. The coordinates can be allocated different meanings. The base can be divided into different coordinate areas in which the user writes his signature or only places the user unit. Depending on which coordinate area the user is selecting, for example, access to different units can be carried out. This results in a quick and flexible activation of the access-protected unit for the user.

In one embodiment, the user unit comprises an optical sensor and image-processing means for registering said at least two coordinates.

The optical sensor obtains images and the image-processing means process the images, which comprises determination of the coordinates from the content of the images, which content can be the above-mentioned position-coding pattern.

According to a second aspect, the invention also provides a checking device for checking a user's access to an access-protected unit, information about at least one coordinate area being stored in the checking device, the checking device being arranged to receive at least two coordinates from a user unit, which belongs to the user, to check, on the basis of the received coordinates, if the user is authorized to access the access-protected unit and, if yes, to provide an enabling signal to an access-protected unit.

The advantage of the checking device is apparent from the above discussion of the system and its checking means.

According to a third aspect, the invention also provides a method for controlling access to an access-protected unit with the aid of a user unit, comprising the steps of registering at least two coordinates from a base by means of the user unit, checking with the checking means and on the basis of the registered coordinates, if the user is authorized to access the access-protected unit, and, if yes, providing an enabling signal to the access-protected unit.

According to a fourth aspect of the invention, this provides a computer program which is stored on a computer-readable storage medium which comprises instructions for causing the computer to carry out a method according to any one of claims 23-29.

According to a fifth aspect, the invention provides use of a position-coding pattern which codes coordinates for controlling access to an access-protected unit.

The advantages of the method, the computer program and the use are apparent from the above discussion. The features which have been discussed with respect to the system also apply in suitable parts to the checking device, the method, the computer program and the use.

Brief Description of the Drawings

The invention will be described in greater detail in the text which follows, by means of embodiments and referring to the accompanying drawings, in which

Fig. 1 shows a system according to a first embodiment of the present invention, which system comprises a digital pen and a coordinate base.

Fig. 2 shows an example of a second embodiment of a system according to the invention, which system comprises a user unit and a logging-in card.

Fig. 3 schematically shows an example of a storage structure for storing, among other things, checking information in a checking device which is used in a system according to the invention.

Description of Preferred Embodiments

In the text which follows, two examples are given of how the invention can be implemented. The first example relates to access to a digital pen. The second example relates to access to a computer. In the first example, the whole system for controlling access to the digital pen is integrated with the digital pen. In the second example, the system for access control is separate from the access-protected unit, i.e. the computer.

Fig. 1 shows a digital pen 1 and a coordinate base 5. The digital pen 1 can be used as a normal pen, with the difference that the text which is written can be obtained in digital form in the pen. To protect the pen

against unauthorized users, it is provided with a system for controlling access to it (a logging-in system).

Logging-in Card

Fig. 1 shows an example of a logging-in card 5 which in this case is similar to a normal magnetic card with respect to size and material. The logging-in card 5 has a writing field 6 which is provided with coordinates which can be read by the digital pen 1. The coordinates can be specified in explicit or coded form. In this example, the logging-in card 5 is provided with coordinates which are coded with the aid of a position-coding pattern 7. The pattern 7 is shown schematically as a number of dots on a part of the logging-in card 5.

The writing field 6 is intended for the user's signature. The logging-in card can be made of such a material that the signature can be erased after having been written. As an alternative, the combination of pen and logging-in card can be such that no pigment is deposited on the logging-in card when the user is writing the signature.

The position-coding pattern 7 has the characteristic that, if an arbitrary part of the pattern is registered with a certain minimum size, its position in the position-coding pattern and thus the logging-in card 5 is determined unambiguously.

The position-coding pattern 7 can be of the type shown in US 5,852,434 where each position is coded by a specific symbol.

However, the position-coding pattern 7 is advantageously of the type shown in Applicant's above-mentioned Applications SE 9901954-9 and SE 9903541-2, where each position is coded by a plurality of symbols and each symbol contributes to the coding of a number of positions. The position-coding pattern 7 is built up of a small number of types of symbol. An example is shown in SE 9901954-9, where a larger dot represents a "one" and a smaller dot represents a "zero". Another example is shown in SE 9901954-9, where four different displacements of a dot in relation to a raster point code four different values.

Digital Pen

The digital pen 1 in Fig. 1 comprises a casing 11. In the short side of the casing, an opening 12 is located.

The casing contains mainly an optical part, an electronic part and a power supply.

The optical part comprises at least one light-emitting diode 13 for illuminating the surface which is to be imaged and a light-sensitive area sensor 14, for example a CCD or CMOS sensor, for registering a two-dimensional image. The pen may also contain a lens system.

The power supply for the pen is obtained from a battery 15 which is mounted in a separate compartment in the casing 11.

The electronic part contains a processor 16 which is programmed for recording an image from the sensor 14, identifying symbols in the image, determining which two coordinates the symbols are coding and storing these coordinates in its memory. The processor 16 is also programmed for analyzing the stored pairs of coordinates and converting them to a polygon train which constitutes a description of how the user unit is displaced over a surface which is provided with the position-coding pattern, which displacement, for example, can represent the user's signature or some other form of handwritten information.

The pen 1 also comprises a pen point 17 with the aid of which the user can write normal pigment-based writing which, at the same time as it is written, is registered digitally by the pen 1 with the aid of the position-coding pattern. The pen point 17 can be retracted and extended so that the user can control if it is to be used or not.

The pen 1 also comprises buttons 18 with the aid of which the unit is activated and controlled. It also has a transceiver 19 for wireless communication, for example by IR light or radio waves, with external units.

Logging-in with the Aid of the Pen

As mentioned, the pen 1 is provided with a logging-in system. When the pen is switched on, the user must log in in order to be able to use it. To handle the logging-in, the pen 1 is provided with a logging-in program. Moreover, information regarding at least the user's specific coordinate area is stored in the memory.

In a first example, the access-unit is the digital pen 1 which also comprises the checking means which comprise a memory in which coordinate areas and associated user identities are stored. Several users can have authorization for the pen 1. Each user can have his own logging-in card 5. The logging-in card 5 can be a card which the user carries with him, for example in his wallet. When a user wishes to log in to the digital pen 1, he places it on the writing field 6 of the logging-in card 5, which is provided with a position-coding pattern 7 which is unique to the user. A part of the pattern is recorded optically by the digital pen 1. A program converts the pattern into coordinates which are transferred to the checking means. The checking means check that the coordinates are lying within a predetermine coordinate area belonging to an authorized user. If yes, the user obtains access to the functions of the digital pen 1. Different users have different coordinate areas, which entails that it is possible to control which programs different users are to be able to access by the pen

starting a different program depending on into which coordinate area the registered coordinates get. To increase security on logging-in, it can be required that a user writes his signature in the writing field. The signature is transferred to the checking means as a sequence of coordinates. The checking means also check, in addition to the field within which the coordinates are located, if the sequence of coordinates for this coordinate area corresponds to an authorized sequence stored in the memory. It is then not enough that an unauthorized person obtains the writing base and pen, but the unauthorized person must also be able to forge the signature of the authorized user in order to gain access to the functions of the pen.

Logging-in to Computer

Fig. 2 shows a second embodiment of the invention, in which the access-protected unit is a computer 4, the user unit is a digital pen 1 and the checking means are available on the web in the form of a server unit 2. The server unit 2 handles a plurality of digital pens 1 and a plurality of computers 4.

The digital pen 1 is arranged to transfer information which is generated by the user to the server unit 2. In this example, the information is transferred wirelessly to a network-access unit 8 which, in turn, transfers the information to the server unit 2. The network-access unit 8 is a mobile telephone in this example. As an

alternative, it can be a computer or some other suitable unit which has an interface with a network, for example the Internet or a local company network. As an alternative, the network-access unit can constitute an integrated part of the user unit.

The server unit 2 is a computer in a network of computers. It is constructed as a traditional server unit with one or more processors, memory of different types, peripheral units and couplings to other computers in the network but it has new software for carrying out the functions described here. It also has information stored in its memory in order to be able to handle these functions.

In the memory of the server unit 2, information on the coordinate areas is stored. The coordinate areas can be of different size and have different shape. A rectangular coordinate area, for example, can be described with the aid of pairs of coordinates which represent points in the corners of the coordinate area. The writing field 6 on the logging-in card 5 occupies one coordinate area.

In a data structure in the memory of the server unit 2, information or rules for each coordinate area are found which define how the information which can be associated with the coordinate area is to be processed.

Fig. 3 shows an example of such a structure which here constitutes a table. In a first column 30 of the table, the coordinate areas are defined with the aid

of the coordinates (x1,y1; x2,y2; x3,y3; x4,y4) for the corners of the coordinate area which have been assumed to be rectangular in this case. In a second column 31, a representation of the signature of the authorized user is stored so that the server unit 2 can compare a received signature with a signature stored earlier. In a third column 32, a user identity is stored in the form of a serial number for the user unit 1 of the authorized user. Naturally, this is a very simple structure which is only used for illustrating the principles. Considerably more complex structures and rules for security checking are conceivable.

When a user wishes to obtain access to a computer 4, he places the digital pen 1 on the writing field 6 and the pen 1 registers the pattern 7 and calculates corresponding coordinates. The coordinates, together with a user identity stored in the user unit 1, are forwarded via the mobile telephone 8 to the server unit 2. The server unit 2 checks to which coordinate area the registered coordinates belong. Each computer 4 in the system is associated with at least one coordinate area. The server unit 2 determines in this way for which computer the access is intended. The server unit 2 then checks that the user identity has the authority to log in to the computer for which the logging-in is intended. If the user has authority, a signal is sent to the computer 4 for which the access is intended, which results in the

user now being logged in to the computer 4. It is possible to send along special information from the server unit to the computer 4 concerned. This special information can comprise user-specific information which, for example, starts programs specific to the user. It can also be that different users obtain access to different amounts of information on the computer 4, which has the result that only certain parts of the content of the computer 4 are opened up to the user. If the user does not have authorization for the computer 4, a message about this can be sent to the digital pen 1.

To increase the security in the system, the user also writes his signature on the writing field 6 of the logging-in card 5. The signature is registered as a sequence of coordinates and, together with the user identity stored in the user unit, is forwarded via the mobile telephone 8 to the server unit 2. The server unit 2 compares the received sequence of coordinates, i.e. the signature, with a sequence of coordinates stored earlier with the user identity. If the received signature is determined to correspond, a signal is sent to the computer 4 and the user is logged in.

It is also possible to arrange the checking means in the computer 4, i.e. the access-protected unit.

Non-recurrent Code

A predetermined coordinate area on a writing base can also function as a non-recurrent field which, after

having been used once, is used up. This can be applicable, for example, when it is wished to be able to discard the writing base after use or when it is wished to keep it as a receipt for access to the system. It can be that the signature is also written on the base with ink, with the result that if an unauthorized person finds the slip, it can be relatively simple for him to follow the written signature and in this way obtain access to the access-protected unit. If, on the other hand, this pattern is used up, the only information remaining is the signature of the user.

Although special embodiments of the invention have been described above, it is obvious to a person skilled in the art that it is possible to produce many alternatives, modifications and variations in the light of the above description.

What we claim and desire to secure by Letters Patent is:

1. A system for controlling a user's access to an access-protected unit (4), characterized in that the system comprises a user unit (1) which is arranged to register at least two coordinates, and checking means (2) which are arranged to check, on the basis of said two coordinates, if the user is authorized to access the access-protected unit (4), and if yes, to provide an enabling signal to the access-protected unit (4).

2. A system according to claim 1, wherein the checking means (2) are arranged to check if the coordinates are lying within a predetermined coordinate area for checking the authorization of the user.

3. A system according to claim 1 or 2, wherein the user unit (1) is arranged to register a user signature as a sequence of coordinates which describe displacement of the user unit when a user is writing the user signature with the user unit (1), and wherein said at least two coordinates comprise the sequence of coordinates.

4. A system according to claim 3, wherein the checking means (2) are arranged to compare the sequence of coordinates with a sequence of coordinates stored earlier for checking the authorization of the user.

5. A system according to any one of the preceding claims, wherein the checking means (2) are integrated with the user unit (1).

6. A system according to any one of the preceding claims, wherein the access-protected unit (4) is integrated with the user unit (1).

7. A system according to any one of the preceding claims, wherein the access-protected unit (4) is a digital pen.

8. A system according to any one of the preceding claims, wherein information about a plurality of coordinate areas is stored in the checking means (2).

9. A system according to claim 8, wherein the access-protected unit (4) is associated with at least one of said plurality of coordinate areas.

10. A system according to claim 8 or 9, wherein at least one authorized user identity is associated with at least one of said plurality of coordinate areas.

11. A system according to any one of the preceding claims, furthermore comprising a base (5) which is provided with a position-coding pattern (7) which enables calculation of coordinates to be carried out and from which the user unit (1) is arranged to register said at least two coordinates.

12. A system according to any one of the preceding claims, wherein the user unit (1) comprises an optical sensor and image-processing means for registering said at least two coordinates.

13. A checking device (2) for checking a user's access to an access-protected unit (4), c h a r a c -

(continued)

(continued claim 13)

t e r i z e d in that information about at least one coordinate area is stored in the checking device (2), the checking device (2) being arranged to receive at least two coordinates from a user unit (1) which belongs to the user, to check, on the basis of the received coordinates, if the user is authorized to access the access-protected unit (4) and, if yes, to provide an enabling signal to the access-protected unit (4).

14. A checking device according to claim 13, furthermore arranged to check if the coordinates are lying within a predetermined coordinate area for checking the user's authorization.

15. A checking device according to any one of claims 13-14, furthermore arranged to receive a sequence of coordinates from a user unit (1), wherein said at least two coordinates comprise the sequence of coordinates.

16. A checking device according to claim 15, further arranged to compare the sequence of coordinates with a sequence of coordinates stored earlier for checking the user's authorization.

17. A checking device according to any one of claims 13-16, wherein the checking device (2) is integrated with the user unit (1).

18. A checking device according to any one of claims 13-17, in which information about a plurality of coordinate areas is stored.

19. A checking device according to claim 18, wherein the access-protected unit (4) is associated with more than one of said plurality of coordinate areas.

20. A checking device according to claim 18 or 19, wherein at least one authorized user identity is associated with at least one of said plurality of coordinate areas.

21. A checking device according to any one of claims 14-19, which is a server unit (2).

22. A checking device according to claim 21, wherein the communication between the user unit (1), the checking device (2) and the access-protected unit (4) takes place in a computer network (3).

23. A method for controlling access to an access-protected unit (4) with the aid of a user unit (1), comprising the steps of:

registering at least two coordinates from a base (5) by means of the user unit (1),

checking, with checking means (2), if the user is authorized as to access the access-protected unit (4), and

if yes, providing an enabling signal to the access-protected unit (4).

24. A method according to claim 23, further comprising the step of checking if the coordinates are lying within a predetermined coordinate area for checking the user's authorization.

25. A method according to claim 23 or 24, wherein the step of registering at least two coordinates by means of the user unit (1) comprises the step of registering, by means of the user unit (1), a sequence of coordinates which describes the displacement of the user unit (1) when a user is writing the user signature with the user unit (1).

26. A method according to claim 25, further comprising the step of comparing the sequence of coordinates with a sequence of coordinates stored earlier for checking the user's authorization.

27. A method according to claim 24, further comprising the step of determining to which predetermined coordinate area the coordinates belong.

28. A method according to claim 27, further comprising the step of determining, from the association of the coordinate area, for which access-protected unit (4) the access is intended.

29. A method according to claim 27 or 28, further comprising the step of determining, from the association of the coordinate area, if the user has authorization for the access-protected unit (4) for which the access is intended.

30. A computer program which is stored on a computer-readable storage medium which comprises instructions for causing the computer (4) to carry out one of the methods according to claims 23-29.

31. Use of a position-coding pattern (7) which enables coordinates to be calculated, for controlling the access to an access-protected unit (4).

Abstract of the Disclosure

A system for controlling a user's access to an access-protected unit (4). The system comprises a user unit (1) which is arranged to register at least two coordinates, and checking means (2) which are arranged to check, on the basis of the coordinates, if the user is authorized to access the access-protected unit (4). If the user is authorized, the checking means are arranged to provide an enabling signal to the access-protected unit (4).

Elected for publication = Fig. 2

THIS PAGE BLANK (USPTO)

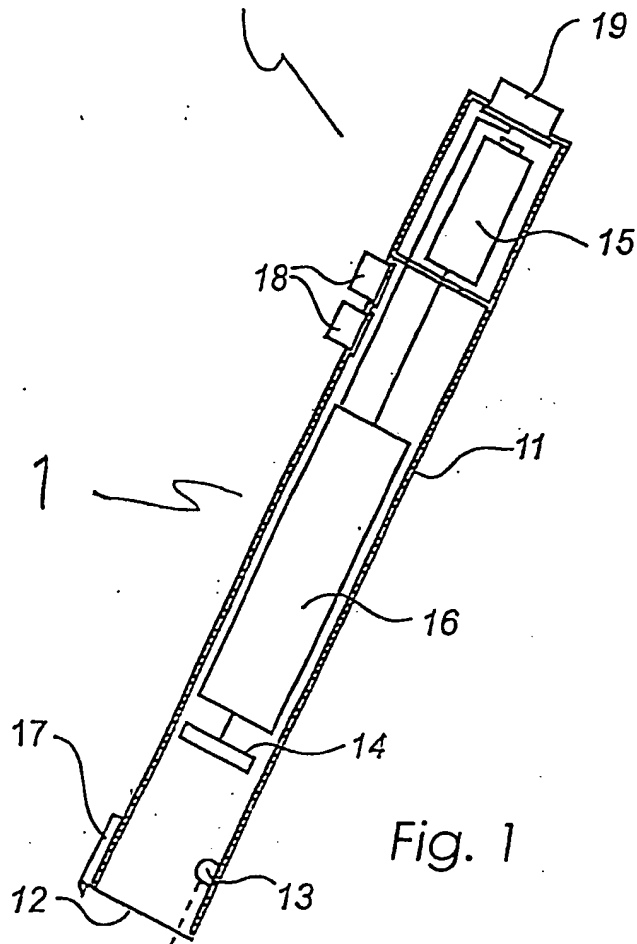
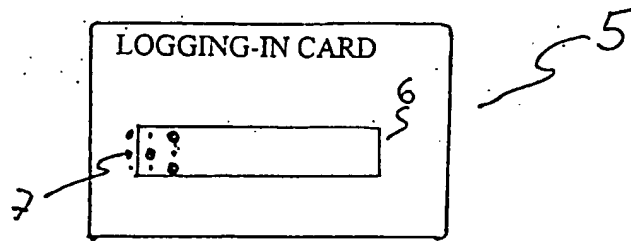


Fig. 1

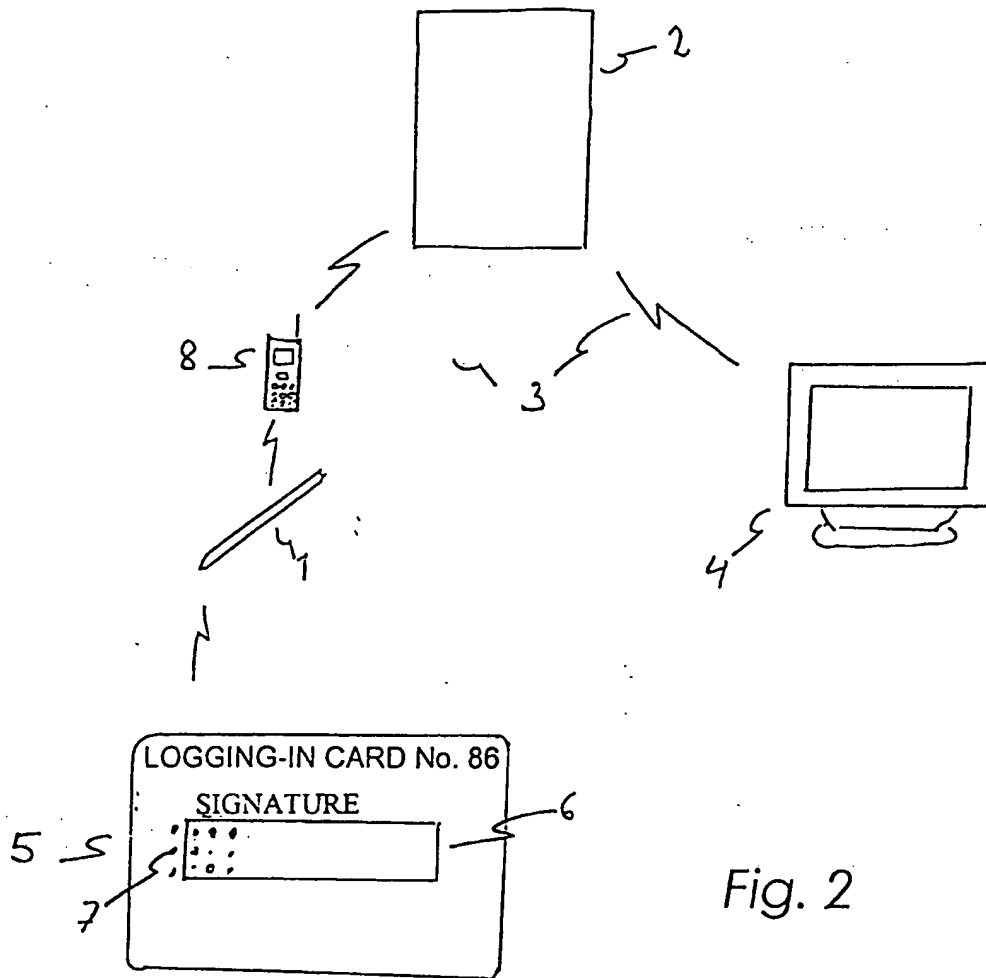


Fig. 2

30 ⚡	31 ⚡	32 ⚡
Coordinate area	Signature	User ID
$(x_1, y_1); (x_2, y_2)$ $(x_3, y_3); (x_4, y_4)$	Per Rask	123 456

Fig. 3